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(56) Documents cited

GB 2149089 A

GB 1560087 A

GB 1544624 A

GB 0721469 A

GB 0705410 A

US 5002038 A

(58) Field of search

UK CL (Edition K) F4T TC TEC TEE TGM, F4W

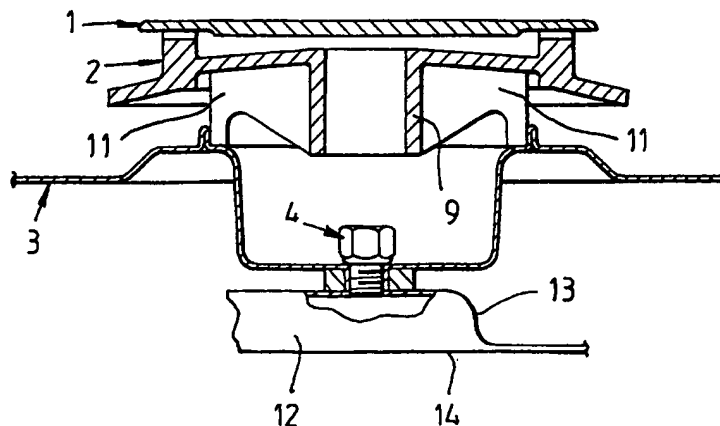
W18B2 W44D

INT CL⁵ F24C

(54) Cooker burner mounting

(57) A gas burner assembly, in particular for domestic use, comprises a burner ring (2) which seats on a work surface (3). The work surface is dished or formed with a suitable configuration and its upper edge forms the preferably circular seat into which is inserted said burner ring. The ring is provided with a multiplicity of separate vertical radial fins (11) around a cylindrical venturi tube (9) disposed above a gas jet (4). Gas is supplied from a chamber (12) formed by suitably curved, dished or bent walls (13, 14) hermetically sealed to each other at their junction edge. The chamber (12) may be produced by the process of blowing at high pressure between two sheets previously prepared by roll-bonding.

Fig. 3



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At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

Fig. 1

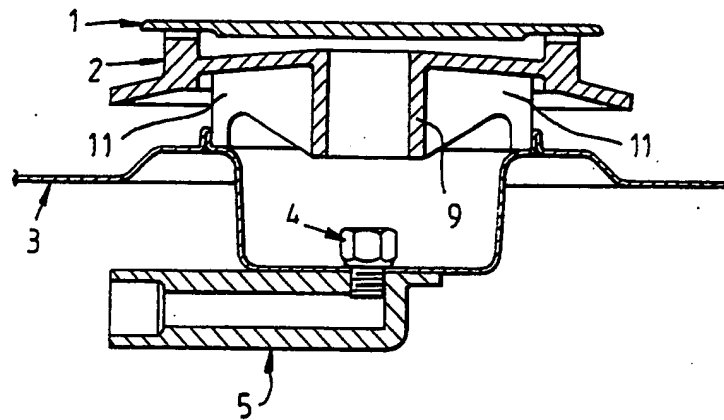


Fig. 2

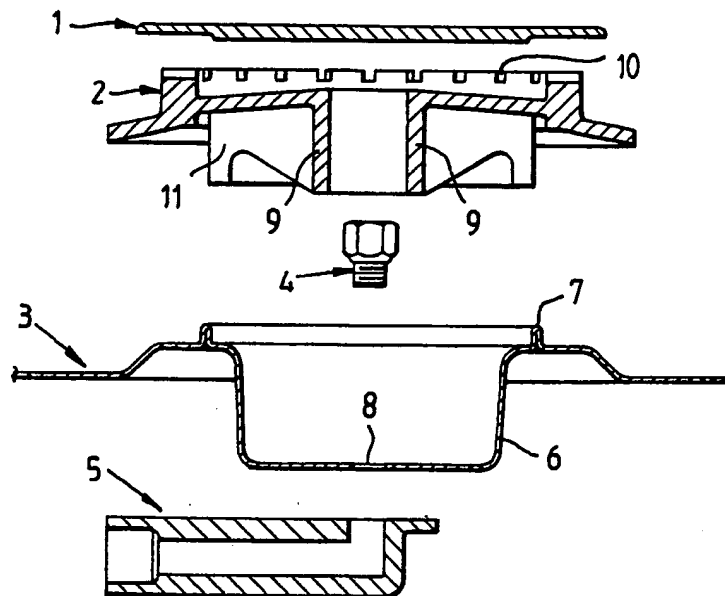
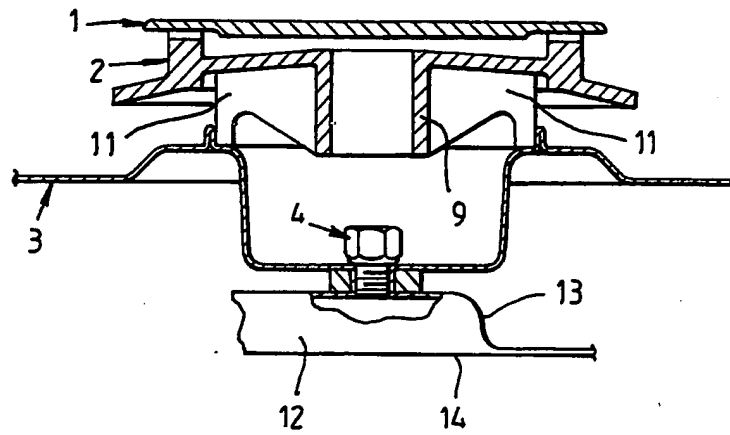
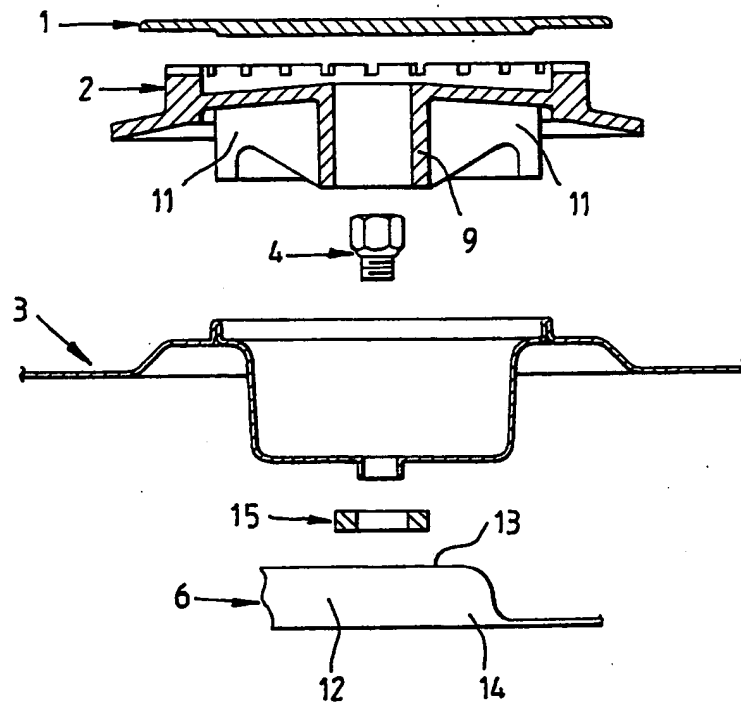


Fig. 3*Fig. 4*

BASIN FOR A BURNER, WHICH IS PRODUCED BY DISHING

The invention concerns a particular type of component of a gas burner assembly used in particular in gas
5 appliances for cooking.

In burners which are to be of minimum vertical size and of the highest level of structural simplicity, the design generally involves a cup-shaped support defining a chamber, on the bottom of which is mounted an injector
10 nozzle connected to a gas supply conduit, an element referred to as a ring extending above and supported at the edge of the support and having a central tubular portion which extends into said chamber, a flame-distributing ring which is drilled radially or which has radial openings for
15 the discharge of gas from the chamber and supported on said ring, and finally a top cover.

In some applications the cup-shaped support and the element having the tubular portion which extends into the chamber for mixing of the fuel gas with air are made as
20 a single component.

In other uses, as for example in US patent no. 3809055, the teaching involves connecting a tube for the supply flow of gas which is already mixed with primary air to a component similar to a dished tray which in its
25 interior contains the burner and is closed by a kind of grating of radiating elements which support the container to be heated.

Other types of burners are known, in which the primary air for mixing with the gas is drawn from above the
30 cooking surface, thus avoiding the disadvantages which are well known to those skilled in the art.

Burner assemblies of this and other similar types, even if they are universally used, do however suffer from some disadvantages:

- the first disadvantage is due to the fact that it is necessary to provide different dimensions in respect of the various components associated with burners of different dimensions;

5 - the second disadvantage is due to the fact that the complexity of such assemblies prevents or impedes assembly using automatic procedures; and

 - a further disadvantage is that, to attain operation with all types of gases, it is normally necessary
10 to dismantle a good part of the burner assembly to replace the gas discharge nozzle.

Apart from that, it is necessary to consider further factors such as the poor degree of compactness of the assembly and the presence of numerous working operations
15 including those involving a high degree of precision, resulting in substantial production wastage.

It would therefore be desirable, and this is the main aim of the invention, to provide a type of burner assembly which, apart from being constructed with a more
20 economical and simple technology, makes it possible to limit the height of the entire assembly and at the same time draws in the primary air from above the cooking surface.

According to the present invention there is provided a gas burner assembly, having a burner ring and
25 seat therefor, the ring being provided with an internal conduit of cylindrical shape as a venturi tube, an upper cap and a gas feed conduit, wherein the seat is a dished or shaped area of a work surface and has a suitable configuration adapted for the insertion of said ring.

30 The invention will be better appreciated from the following description given solely by way of non-limiting example and with reference to the accompanying drawings in which:

Figure 1 is a view in cross-section of a burner
35 assembly in the completely assembled condition, according to

the invention;

Figure 2 shows the same assembly as that shown in Figure 1, with the various components disassembled;

Figure 3 shows an alternative configuration of the assembly shown in Figure 1; and

Figure 4 shown the assembly illustrated in the preceding figure with the various components disassembled.

Referring to the drawings, the structure and mode of operation of the invention are diagrammatically shown therein.

In substance it comprises eliminating some components which at the present time are separate, more precisely the work surface, the body of the burner, the seal between those elements and suitable fixing elements (screws or the like) and using a single suitably dished element formed by the work surface 3 which is dished in a configuration from the upper, preferably circular, edge 7 so as to form the burner body.

Besides the edge 7, the burner body 6 is also provided with a lower hole 8 to which is fitted the nozzle 4 to which there goes the conduit 5 for the supply flow of gas, which thus passes into the space formed by the dishing.

The edge 7 of the dishing is shaped as a seat into which is inserted, preferably in supported relationship, the ring 2 which is provided with the walls 9 for the venturi tube; conventionally, the ring which is provided with suitable holes 10 for the emission of gas is closed upwardly by a normal cap 1.

The ring 2 is provided with vertical radial fins 11 which are fitted to said edge 7 to complete the burner assembly, and the primary air is taken from above the work surface 3 by way of the spaces which are automatically created between the adjacent fins 11.

In that way the space created by the dishing of the work surface 3 becomes the gas-air mixing chamber.

It will be noted that a particular advantage of this invention is afforded by the fact that the same work surface 3 with the same dishing and edge 7 can be used for the insertion of a plurality of rings 2 of different diameters and which thus afford different levels of performance, thereby achieving a substantial improvement in terms of simplification and standardisation of the production process.

Referring to Figures 3 and 4, a useful improvement in the present invention is provided if the opening 8 for diffusion of the gas within the space produced by the dishing is produced not with the usual conduit 5 for the feed of gas but with a gas feed flow chamber 12, the chamber being produced by closing together two suitably shaped sheets 13 and 14 and sealing the edge thereof, for sample by means of welding.

A suitable seal 15 can be provide to ensure sealing integrity in relation to the gas.

That improvement may be particularly useful for further simplifying the construction of the assembly and to make it possible to reduce the height thereof, avoiding the use of pipes which are always costly and bulky.

A useful alternative form of that construction is afforded by the possibility of producing the chamber 12 by means of the process involving blowing at high pressure between two previously treated sheets, in such a way as to create the inflated configuration which is desired in regard to dimensions, shape and resistance to pressure. That procedure would make it possible further to simplify and standardise the construction of the gas feed element.

An example of this expansion process is provided by the well-known procedure referred to as the 'roll-bond' procedure which is used in refrigerators.

CLAIMS

1. A gas burner assembly, having a burner ring and seat therefor, the ring being provided with an internal conduit of cylindrical shape as a venturi tube, an upper cap and a gas feed conduit, wherein the seat is a dished or shaped area of a work surface and has a suitable configuration adapted for the insertion of said ring.
5
2. A burner assembly according to claim 1 wherein said ring is provided with a multiplicity of vertical radial fins which are separate from each other and that said dishing has an upper edge of preferably circular shape forming a seat into which said ring is fitted.
10
3. A burner assembly according to claim 2 wherein the lower wall of said dishing has a hole for insertion of the nozzle connected to the conduit for the intake of gas into the space provided by the dishing which constitutes the gas-primary air mixing chamber.
15
20
4. A burner assembly according to claim 1 wherein said gas supply conduit is provided by means of a chamber which is closed by walls which are suitably curved, dished or bent and which are hermetically sealed to each other at their junction edge.
25
5. A burner assembly according to claim 4 wherein said chamber is produced by the process of blowing at high pressure between two sheets prepared by roll-bonding.
30
6. A gas burner assembly constructed and arranged to operate substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.
35

7. A gas cooker having a work surface having provided thereon at least one burner assembly according to any one of the preceding claims.

Patents Act 1977
Examiner's report to the Comptroller under
Section 17 (The Search Report)

- 7 -
Application number

9210269.8

Relevant Technical fields

(i) UK Cl (Edition K) F4T (TC, TEC, TEE, TGM)
F4W (W18B2, W44D)

(ii) Int Cl (Edition 5) F24C

Search Examiner

M J DAVEY

Databases (see over)

(i) UK Patent Office

(ii)

Date of Search

24 JULY 1992

Documents considered relevant following a search in respect of claims

1 TO 7

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 2149089 A (THORN EMI) - see in particular page 1 lines 21-41	1,7
X	GB 1560087 (RUHRGAS) - see in particular Figures 1, 3 and page 3 lines 17 to 24 and 65 to 69	1,7
X	GB 1544624 (T I DOMESTIC APPLIANCES) - see Figure 1 and page 2 lines 118-124 in particular	1,7
X	GB 721469 (HOMANN) - see Figures 2, 4, 5, 6 and page 2 lines 116-119 and page 3 lines 18-78 in particular	1,2,7
X	GB 705410 (HOMANN) - see in particular Figure 4 and page 1 line 80 to page 2, line 38 and Claims 1, 2, 5 and 6	1,2,7
X	US 5002038 (RIEHL) - see Figures 1, 2 and 4 in particular	1

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Category	Identity of document and relevant passages	Relevant to claim(s)

Categories of documents

X: Document indicating lack of novelty or of inventive step.

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P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

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